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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------------------|------------------------|
| 10/723,790 | 11/26/2003 | Steven Lawrence Fors | 134690IT/YOD GEMS:0239 | 9080 |
| 7590 Patrick S. Yoder FLETCHER YODER P.O. Box 692289 Houston, TX 77269-2289 | | | EXAMINER MACKOWEY, ANTHONY M | |
| | | | ART UNIT 2624 | PAPER NUMBER |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|------------------------------------|--|
| Office Action Summary | Application No. 10/723,790 | Applicant(s) FORS ET AL. | |
| | Examiner ANTHONY MACKOWEY | Art Unit 2624 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 March 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-15,35-37 and 53-55 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-15,35-37 and 53-55 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Group II in the reply filed on March 24, 2008 is acknowledged.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.

When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and *Warmerdam*, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).

In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See *Lowry*, 32 F.3d at 1583-84, 32 USPQ2d at 1035.

Claims 53-55 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claim 53 defines a tangible medium embodying functional descriptive material (i.e., a computer program or computer executable code).

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However, the claim does not define a “computer-readable medium or computer-readable memory” and is thus non-statutory for that reason (i.e., “When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized” – Guidelines Annex IV). The scope of the presently claimed invention encompasses products that are not necessarily computer readable, and thus NOT able to impart any functionality of the recited program. The examiner suggests amending the claim(s) to embody the program on “computer-readable medium” or equivalent; assuming the specification does NOT define the computer readable medium as a “signal”, “carrier wave”, or “transmission medium” which are deemed non-statutory (refer to “note” below). Any amendment to the claim should be commensurate with its corresponding disclosure.

Note:

“A transitory, propagating signal ... is not a “process, machine, manufacture, or composition of matter.” Those four categories define the explicit scope and reach of subject matter patentable under 35 U.S.C. § 101; thus, such a signal cannot be patentable subject matter.” (In re Nuijten, 84 USPQ2d 1495 (Fed. Cir. 2007)). Should the full scope of the claim as properly read in light of the disclosure encompass non-statutory subject matter such as a “signal”, the claim as a whole would be non-statutory. Should the applicant’s specification define or exemplify the computer readable medium or memory (or whatever language applicant chooses to recite a computer readable medium equivalent) as statutory tangible products such as a hard

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drive, ROM, RAM, etc, **as well as** a non-statutory entity such as a “signal”, “carrier wave”, or “transmission medium”, the examiner suggests amending the claim to include the disclosed tangible computer readable storage media, while at the same time excluding the intangible transitory media such as signals, carrier waves, etc.

Merely reciting functional descriptive material as residing on a tangible medium is not sufficient. If the scope of the claimed medium covers media other than “computer readable” media (e.g., “a tangible media”, a “machine-readable media”, etc.), the claim remains non-statutory. The full scope of the claimed media (regardless of what words applicant chooses) should not fall outside that of a computer readable medium.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11-15, 35 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of US 6,212,291 to Wang et al. (“Wang”) and US 4,847,694 to Nishihara.

Regarding claim 11, Wang discloses a method for separating digitized images on a digitized sheet of film (Fig. 10; col. 4, line 21 – col. 5, line 28), comprising:

accessing a digitized sheet of film having a number of digitized images, the sheet of film resulting from scanning of an analog sheet of film reproduced from image data acquired with a medical imaging modality (Figs. 1A-B; col. 4, lines 25-26; col. 5, lines 29-45);

configuring a digital template based on the number of digitized images (col. 4, lines 39 – col. 5, line 10, *collimation blades*); and

slicing the digitized images by applying the digital template to the digitized sheet (col. 4, line 39 – col. 5, line 10, *collimation blades are used to partition the digitized sheet into sub-images*).

Wang is silent with regard to collating the digitized images. However, Nishihara discloses a picture archiving and communication system which performs collation of image data (col. 3, line 65 – col. 4, line 1; col. 5, lines 21-46).

Wang and Nishihara are combinable because they are both in the field of medical image processing. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Wang and Nishihara such that the method of Wang could be implemented in a PACs system such as that disclosed by Nishihara and the method is modified to include collating the digitized images as disclosed by Nishihara in order to store the digitized images in a database for further retrieval, processing and/or analysis and enable a database to control both image data which is mistakenly supplied to it and image data which it should receive but has not yet reached it (Nishihara, col. 2, lines 5-9).

Regarding claim 12, Wang further discloses the digital template is configured and applied with a computer algorithm (col. 5, lines 46-55).

Regarding claim 13, the combination of Wang and Nishihara further discloses at least one of storing the collated digitized images (Nishihara, col. 4, lines 1-2), ordering the collated digitized images, displaying the collated digitized images in stack mode or cine mode, displaying the collated digitized images on a PACS workstation monitor (Wang, col. 5, lines 44-45), displaying the collated digitized images in combination with a DICOM header defining a series and order of the collated digitized images, registering the collated digitized images (Nishihara, col. 2, line 65 – col. 4, line 2), comparing the collated digitized images with digital images, and registering the collated digitized images with digital images.

Regarding claim 14, Wang further discloses the original image data of the digitized images reproduced on the sheet of film is acquired with at least one of a magnetic resonance imaging (MRI) system, a computed tomography (CT) imaging, and an X-ray imaging system (col. 6, lines 13-16).

Regarding claim 15, Wang further discloses the digitized sheet is stored after the sheet of film is scanned to generate the digitized sheet (col. 5, lines 30-42).

Regarding claim 35, Wang discloses a system for separating digitized images within an image file of a digitized sheet of film (Fig. 9; col. 5, line 29 – col. 6, line 16), comprising:

means for accessing a digitized sheet of film having a number of digitized images, the sheet of film resulting from scanning of an analog sheet of film reproduced from image data acquired with a medical imaging modality (Figs. 1A-B and 9; col. 4, lines 25-26; col. 5, line 29 – col. 6, line 16);

means for slicing the digitized images with a digital template (Fig. 9; col. 4, lines 39 – col. 5, line 10; col. 5, line 29- col. 6, line 16, *image processor, collimation blades*);

means for storing the digitized images (Fig. 9; col. 5, lines 29-42, *memory*); and

wherein the images are originally reproduced on the analog sheet of film from image data acquired with at least one of a magnetic resonance imaging (MRI) system, a computed tomography (CT) imaging, and an X-ray imaging system (col. 5, lines 30-42; col. 6, lines 13-16).

Wang is silent with regard to collating the digitized images. However, Nishihara discloses a picture archiving and communication system (PACS) which performs collation of image data (col. 3, line 65 – col. 4, line 1; col. 5, lines 21-46).

Wang and Nishihara are combinable because they are both in the field of medical image processing. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Wang and Nishihara such that the system of Wang could be implemented in a PACS system such as that disclosed by Nishihara and is modified to include collating the digitized images as disclosed by Nishihara in order to store the digitized images in a database for further retrieval, processing and/or analysis and enable a database to control both image data which is mistakenly supplied to it and image data which it should receive but has not yet reached it (Nishihara, col. 2, lines 5-9).

Regarding claim 53, Wang discloses a computer program, provided on one or more tangible media, for separating digitized images within an image file of a digitized sheet of film (Fig. 10; col. 4, line 21 – col. 5, line 28; col. 5, lines 46-55; col. 6, lines 3-13), comprising:

a routine for accessing a digitized sheet of film having a number of digitized images, the sheet of film resulting from scanning of an analog sheet of film reproduced from image data acquired with a medical imaging modality (Figs. 1A-B; col. 4, lines 25-26; col. 5, lines 29-45);

a routine for slicing the digitized images with a digital template (col. 4, line 39 – col. 5, line 10, *collimation blades are used to partition the digitized sheet into sub-images*);

a routine for storing the digitized images (col. 5, 28 - col. 6, line 13); and

wherein the images are originally reproduced on the analog sheet of film from image data acquired with at least one of a magnetic resonance imaging (MRI) system, a computed tomography (CT) imaging, and an X-ray imaging system (col. 5, lines 30-42; col. 6, lines 13-16).

Wang is silent with regard to collating the digitized images. However, Nishihara discloses a picture archiving and communication system which performs collation of image data (col. 3, line 65 – col. 4, line 1; col. 5, lines 21-46).

Wang and Nishihara are combinable because they are both in the field of medical image processing. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Wang and Nishihara such that the method of Wang could be implemented in a PACs system such as that disclosed by Nishihara and the method is modified to include collating the digitized images as disclosed by Nishihara in order to store the digitized images in a database for further retrieval, processing and/or analysis and enable a database to

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control both image data which is mistakenly supplied to it and image data which it should receive but has not yet reached it (Nishihara, col. 2, lines 5-9).

Claims 36, 37, 54 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Wang and Nishihara as applied to claims 35 and 53 above, and further in view of US 6,947,584 to Avila et al. ("Avila").

Regarding claims 36, 37, 54 and 55, While Wang discloses the digitized images may be obtained from CT or MRI imaging (col. 6, lines 13-16) and displaying processed images (col. 5, lines 44-45), Wang and Nishihara are silent with regard to ordering the collated digitized images and displaying the collated digitized images on a PACS workstation monitor in stack mode or cine mode. However, Avila discloses a volume imaging system which orders the digitized images and displays digitized images in stack mode or cine mode (col. 4, lines 46-48; col. 4, line 65 – col. 5, line 19; col. 7, lines 32-36; col. 8, lines 22-40; col. 9, lines 8-59).

Wang, Nishihara and Avila are combinable because they are all in the field of medical image processing. It would have been obvious to one of ordinary to combine Wang Nishihara and Avila such that the combination of Wang and Nishihara (as described above) is modified to include ordering the collated digitized images and displaying the collated digitized images on a PACS workstation monitor in stack mode or cine mode as disclosed by Avila in order to enable an operator to measure and visualize a three dimensional volumetric data set (Avila, col. 3, lines 5-9).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 2004/0161139 to Samara et al.

US 4,829,181 to Shimura

US 5,586,262 to Komatsu et al.

US 5,859,891 to Hibbard

US 5,892,840 to Jang et al.

US 6,272,470 to Teshima

US 6,574,629 to Cooke, Jr. et al.

US 6,904,161 to Becker et al.

US 6,917,826 to Wei et al.

US 6,999,558 to Okoda

US 7,146,031 to Hartman et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY MACKOWEY whose telephone number is (571)272-7425. The examiner can normally be reached on M-F 9:00-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew C Bella/
Supervisory Patent Examiner, Art Unit
2624

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5/23/08